

AMENDMENT

Amendments to the Specification:

Please replace the paragraph beginning at page 1, line 10 with the following rewritten paragraph:

This application is a continuation of U.S. Patent Application Serial No. 09/878,766, filed June 11, 2001, from which priority is claimed under 35 USC §120 and which application is incorporated by reference herein in its entirety, which is related to provisional patent application serial no. 60/211,247, filed June 12, 2000, from which application priority is claimed under 35 USC §119(e)(1) and which application is incorporated herein by reference in its entirety.

Please replace the paragraph beginning at page 28, line 28 with the following rewritten paragraph:

Most preferably, A, B, and/or C include one or more variable regions of the GapC proteins from more than one streptococcus species. In this regard, Figures 8A-8C show an amino acid sequence alignment which illustrates regions of homology and variability that exist among GapC proteins from *S. dysgalactiae*, *S. agalactiae*, *S. uberis*, *S. parauberis*, and *S. iniae*. Amino acid sequences for the GapC proteins of *S. pyogenes* and *S. equisimilis*, *S. pyogenes* are also included. In particular, several variable regions are located at amino acid positions 89 to 108 (corresponding to positions 62 to 81 of Figures 1-5); 214 to 224 (corresponding to positions 102 to 112 of Figures 1-5); 277 to 284 (corresponding to positions 165 to 172 of Figures 1-5); 360 to 383 (corresponding to positions 248 to 271 of Figures 1-5); and 398 to 417 (corresponding positions 286 to 305 of Figures 1-5).

Please replace the table beginning on page 46, line 1 with the following revised table:

Table 1: Sequence Identification Numbers and Corresponding Nucleotide and Amino Acid Sequences

SEQ ID NO.	Name	Nucleotide Sequence (5' to 3')
<u>1</u>	<i>gapCI</i>	<u>GG CGG CGG CAT</u> ATG GTA GTT AAA GTT GGT ATT AAC GG
<u>2</u>	<i>gapCIr</i>	<u>GC GGA TCC</u> TTA TTT AGC GAT TTT TGC AAA GTA CTC
<u>3</u>	Gap-1	AAA AAA GGA TCC GGT ATG GTA GTT AAA GTT GG
<u>4</u>	Gap-2	AAA AAA CCA TGG TTA CTC GAG TGC TTC CAG AAC GAT TTC
<u>5</u>	Gap-3	AAA AAA CTC GAG GGT ACT GTA GAA GTT AAA G
<u>6</u>	Gap-4	AAA AAA CCA TGG TTA ATC GAT TTC AAG AAC GAT TTC AAC ACC GTC
<u>7</u>	Gap-5	AAA AAA ATC GAT GGT ACT GTT GAA GTT AAA GAA G
<u>8</u>	Gap-6	AAA AAA CCA TGG TTA ACT AGT TGC TTC AAG AAC GAT TTC TAC GCC
<u>9</u>	Gap-7	AAA AAA ACT AGT TTC TTT GCT AAA AAA GAA GCT GC
<u>10</u>	Gap-8	AAA AAA CCA TGG CTA TTA TTT AGC GAT TTT TGC AAA ATA CTC
<u>11</u>	<i>Streptococcus dysgalactiae</i> <i>gapC</i> gene	(see Figure 1)
<u>12</u>	<i>Streptococcus dysgalactiae</i> GapC protein	
<u>13</u>	<i>Streptococcus agalactiae</i> <i>gapC</i> gene	(see Figure 2)
<u>14</u>	<i>Streptococcus agalactiae</i> GapC protein	
<u>15</u>	<i>Streptococcus uberis</i> <i>gapC</i> gene	(see Figure 3)
<u>16</u>	<i>Streptococcus uberis</i> GapC protein	

<u>17</u>	<i>Streptococcus parauberis</i> <i>gapC</i> gene	(see Figure 4)
<u>18</u>	<i>Streptococcus parauberis</i> GapC protein	
<u>19</u>	<i>Streptococcus iniae</i> <i>gapC</i> gene	(see Figure 5)
<u>20</u>	<i>Streptococcus iniae</i> GapC protein	
<u>21</u>	Gap4 chimeric <i>gapC</i> gene	(see Figure 6)
<u>22</u>	Gap4 chimeric GapC protein	

Please replace the paragraph beginning on page 48, line 4 with the following rewritten paragraph:

PCR amplification was carried out as follows: 1.6 µg of template DNA was combined in a reaction mixture containing 20 pM each of primer Gap-1 [(SEQ ID NO:1)] (SEQ ID NO:3) and Gap-2 [(SEQ ID NO:2)] (SEQ ID NO:4), 200 µm each of dATP, dCTP, dGTP and dTTP, 2.5mM MgSO₄, PCR Buffer (10 mM Tris-HCl, pH 8.3, 50 mM KCl), and 1 unit Taq DNA polymerase (Pharmacia, Quebec, Canada). The mix was amplified for 1 cycle of 1 minute at 95°C, then for 29 cycles of 1 minute at 95°C, 1 minute at 55°C, and 30 seconds at 72°C, and finally for 1 cycle of 10 minutes at 4°C.

Please replace the paragraph beginning on page 49, line 21 with the following rewritten paragraph:

The chimeric *gapC* gene constructed in the preceding steps was excised from pAA556 by digestion with *BamH*1 and *Nco*I and inserted into the plasmid pAA555 digested with the same enzymes. pAA555 is identical to pAA556 except that the former plasmid contains the *LipoF* signal sequence, and provides for the addition of a cysteine at the amino terminal end of the mature GapC protein. The N-terminal cysteine was added to insure the chimeric protein's

efficient secretion of from the cell and binding to the membrane via the lipid-moiety. The coding sequence of the PolyGap4 plasmid construct is shown in Figure 25 Figures 6A-6C.